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ABSTRACT

The extent to which identification as learning disabled is a function of the definition used and the extent to which different classifications would result from use of different definitions were examined in a study involving 51 students (6 to 12 years old) referred for psychological evaluation as a result of academic difficulties. The school identification decisions, resulting in 24 children labeled as learning disabled (LD) were based on application of a severe discrepancy on the Woodcock-Johnson Psycho-Educational Battery. These decisions did not correlate with decisions based on application of the Federal definitions which indicate that the LD must be severe. (Author/CL)

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IDENTIFYING CHILDREN WITH LEARNING DISABILITIES: WHEN IS A DISCREPANCY SEVERE?

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Abstract

Identification of children with learning disabilities is based on the notion of a significant discrepancy between ability and achievement. Current federal guidelines do not specify the extent of such discrepancies but indicate they should be "severe." Local education agencies have adopted criteria suggested by professionals or have formulated their own operational criteria for identification of learning disabled children. The present study examined the extent to which identification as learning disabled is a function of the definition used, and the extent to which different classifications would result from use of different definitions. A school district made identification decisions for 51 students referred because they were experiencing academic difficulties; 24 were labeled as LD. school identification decisions, based on application of a severe discrepancy on the Woodcock-Johnson Psycho-Educational Battery, did not correlate with decisions based on application of the Federal defini-Implications for decision-making practices are discussed.

Identifying Children with Learning Disabilities:

When is a Discrepancy Severe?

Identification practices in the field of learning disabilities rest on the notion of significant discrepancy between ability and achievement. Current federal regulations suggest that a child may be said to have a specific learning disability (LD) if his/her ability is not commensurate with achievement in one or more of seven academic areas. While the magnitude of the ability-achievement difference is not specified, it is clearly stated that a "severe discrepancy" is to be the basis for identification. A variety of techniques for analyzing the severity or significance of differences between ability and achievement scores have been posited (cf. Ysseldyke, 1979).

Critical issues in analysis of difference scores have been discussed by Salvia and Ysseldyke (1978). Specifically, they indicate that, since tests used to define ability-achievement discrepancies are normed on different populations and correlations between them generally are not available, the discrepancy score analysis is at best problematic due to the unreliability of difference scores. Additionally, when the magnitude of the discrepancy is left undefined, a "specific learning disability" truly becomes an arbitrarily defined disorder.

Increasingly within the last two years schools have been using a new test, the Woodcock-Johnson Psycho-Educational Battery, to identify students as learning disabled. The Woodcock-Johnson Psycho-Educational Battery (Woodcock & Johnson, 1977) is a series of 27 subtests designed to measure cognitive abilities, scholastic aptitudes, achievement in

selected areas, as well as several scholastic and nonscholastic interests. Woodcock (1978) suggests that the <u>Battery</u> may be used to identify students with "special problems and disabilities" through analysis of discrepancies between potential (i.e., aptitude) and achievement. He suggests that the "cluster difference score and relative performance index (RPI)" may have "utility in definitions of a performance deficit or disability" and offers several "functioning level" labels for various difference scores and RPIs (Woodcock, 1978, p. 65). A <u>Severe Deficit</u> is defined as a difference of 26 points or an RPI of 0/90 to 34/90.

Of interest in this study was the extent to which students identified as learning disabled according to "severe deficits" based on aptitude-achievement performance on the <u>Battery</u> would be the same students as those identified using the criteria specified in the current federal guidelines.

Method

Subjects

Fifty-one students referred for psychological evaluation as a result of learning difficulties in school were the subjects of this study. Thirty-three boys (65%) were included in the sample. The average age of the students was 8 years, 9 months (SD = 2 years); the youngest child was 6.6 years old and the oldest was 12.6 years old. All of the students were from one school district in Minnesota.

The school district criteria for determination of "severe discrepancies" and the "existence of special learning disabilities" in grades 1.5 through 6.9 are based on Woodcock-Johnson (WJ) performance measures (cf. Woodcock, 1978). If a child's test profile yields a "severe deficit" functioning

level, the student is considered eligible for LD service. Additional testing in reading and mathematics is considered appropriate, if a "moderate deficit" is indicated by the administration of the <u>Battery</u> aptitude and achievement clusters. By these criteria, school personnel identified 24 of the 51 students (47%) as eligible for LD services.

The average age of students identified as LD (\bar{X} = 8 years) was not different (\underline{t} = -1.97) from the average age (\bar{X} = 9 years) of the students not identified as LD. Seventy-one percent (i.e., 17) of the LD students were boys; 60% (i.e., 16) of the Non-LD students were boys. The sex distribution was similar across groups of subjects (χ^2 = 0.32, \underline{df} = 1, \underline{p} < .01).

Procedure

As part of the diagnostic assessment, each student was administered several psychometric devices. In addition to the <u>Battery</u>, the Wechsler Intelligence Scale for Children - Revised (WISC-R) and the Peabody Individual Achievement Test (PIAT) were given. Of interest was the extent to which children identified as LD by application of the Woodcock "severe deficit" criterion differed in other psychometric characteristics (i.e., WISC-R and PIAT performance) from children not identified.

<u>Data analysis</u>. A series of <u>t</u> tests was calculated for the various available scores. The 24 school-identified LD (i.e., severe deficit) children represented one group of subjects and the 27 school-identified Non-LD (i.e., not severe deficit) children represented the comparison group. Because of the large number of tests, a stringent level of significance (p < .01) was employed.

To ascertain the extent to which similar diagnostic decisions would be made regardless of the actual eligibility criteria used, the number of "correct classifications" resulting from application of the <u>Federal Register</u> (1977) definition was investigated. The federal guidelines indicate that a "team may determine that a child has a specific learning disability if:

- (1) The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed in paragraph (a) (2) of this section, when provided with learning experiences appropriate for the child's age and ability levels; and (2) The team finds that a child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas:
 - (i) Oral expression;
 - (ii) Listening comprehension;
 - (iii) Written expression;
 - (iv) Basic reading skill;
 - (v) Reading comprehension;
 - (vi) Mathematics calculation; or
 - (vii) Mathematics reasoning" (p. 65083).

No definitional criteria for "severe discrepancy" are provided; two operationalizations were used in this research. First, ability (WISC-R) and achievement (PIAT) differences in four areas (i.e., reading recognition, reading comprehension, spelling, mathematics) were calculated. Next, the extent of discrepancy was evaluated; differences greater than one standard deviation (e.g., 15 standard score points) were considered as

the eligibility criterion in one analysis and differences of one and one-half standard deviations (e.g., 23 standard score points) were considered as the eligibility criterion in another analysis. An analysis of the relationships between diagnostic classification using the "severe deficit" criterion of Woodcock (1978) and these other operational criteria for eligibility was completed.

Results

Means and standard deviations (SD) for LD and Non-LD students' "ability" scores are presented in Table 1. No significant differences were indicated between the groups on WISC-R intellectual abilities or WJ aptitudes or cognitive abilities. The achievement scores for identified and not identified students are presented in Table 2; significant differences between the groups were indicated in several areas. Reading achievement as measured by the Battery was significantly lower for children identified as LD (\bar{X} = 82.58) than for the Non-LD children (\bar{X} = 92.70); this is not surprising since the identification criterion required a "severe deficit" in some area of achievement. The two groups' reading recognition and spelling performance as measured by the PIAT were also significantly different. No other significant differences were indicated between the groups.

Insert Tables 1 and 2 about here

An analysis of the individual WJ subtest performances of the children indicated no significant differences for the ability subtests; however, average scores on six of seven achievement subtests were

significantly different. Children identified as LD performed significantly lower on Letter-Word Identification, Word Attack, Passage Comprehension, Calculation, Dictation, and Proofing. When these scores were combined to form recommended "cluster scores," differences in Reading Achievement (i.e., Letter-Word Identification, Word Attack, Passage Comprehension) resulted. The actual scores obtained on each subtest as well as the cluster identifications for the achievement subtests are included in Table 3.

Insert Table 3 about here

No relationship was indicated between classification on the basis of the Woodcock-Johnson "Severe Discrepancy" and classification on the basis of a one (r = 0.03) or one and one-half (r = 0.17) standard deviation discrepancy between ability and achievement in at least one of four areas. The actual number of children to be classified according to each criterion is presented in Table 4; relative percentages also are indicated.

Insert Table 4 about here

Discussion

The field of learning disabilities has suffered from definitional problems from its inception; however, no problem with prevalence exists. Myklebust has said, "Tell me how many you want to find and I'll write you a definition that will find that many" (McCarthy, 1968). When we recognize that "learning disabilities" is merely a sophisticated term for underachievement, the question of extent to which discrepant

achievement is "severe" becomes important. It is likely that use of one definition for severe achievement deficits will not result in classification of similar students when measured against another "severe" criterion; the current state of the art in psychometric measurement is partially, if not totally, the reason for such error. The federal guidelines for identification of learning disabled youngsters provide several chances for underachievement to occur (i.e., "severe discrepancy" "in one or more" achievement areas). Local education agencies are expected (or forced by federal omission) to define the severity of discrepancy that is the eligibility criterion. This research has indicated that the use of the Woodcock-Johnson Psycho-Educational Battery (Woodcock & Johnson, 1978) criteria resulted in identification of children who differ only in specific achievement areas (i.e., reading) from their non-identified peers. Further, the research demonstrated that there was no relationship between identification with the Battery and identification with application of operationalized federal guidelines using the WISC-R and PIAT.

The utility of the WJ criteria (or any others) for identification is not questioned; application of Woodcock's (1978) criteria resulted in identification of youngsters. The extent to which use of those criteria (or any others) will result in a discrete group of underachievers is highly questionable and the possibility of reverse discrimination (non-identification of an eligible child) becomes a reality. Local school discrete guidelines to protect against "misclassification by virtue of operational criteria" seem warranted. For example, had this district



applied two criteria, l1-14 children would have been identified; this is approximately half of those identified when only the WJ criterion was used.

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Footnote

Bob Algozzine is also Associate Professor at the University of Florida, Gainesville.

Table 1
Means and Standard Deviations of Ability Measures

		fied LD	Not Identified LD		
Measure	Mean	SD	Mean	SD	
WISC-R Full Scale	96.50	11.37	94.30	10.73	
WISC-R Verbal	91.75	13.02	91.85	12.40	
WISC-R Performance	102.38	11.62	98.81	11.51	
WISC-R Information	93.75	12.62	89.81	14.90	
WISC-R Similarities	94.17	18.10	97.96	13.54	
WISC-R Arithmetic	89.79	10.16	91.85	12.87	
WISC-R Vocabulary	91.25	13.29	92.04	13.54	
WISC-R Comprehension	98.75	17.34	96.11	13.03	
WISC-R Picture Completion	103.75	9.92	102.04	10.94	
WISC-R Picture Arrangement	106.25	13.61	102.78	13.68	
WISC-R Block Design	101.88	11.87	92.41	14.10	
WISC-R Object Assembly	100.92	12.47	101.30	11.06	
WISC-R Coding	95.87	14.35	98.48	14.88	
WJ Reading Aptitude Cluster	101.33	8.96	95.26	11.19	
WJ Mathematics Aptitude Cluster	96.88	11.05	91.41	11.63	
WJ Written Language Aptitude Cluster	93.96	9.74	90.89	9.50	
WJ Knowledge Aptitude Cluster	95.58	9.85	90.22	9.72	
WJ Broad Cognitive Cluster	94.33	10.65	91.48	9.67	
WJ Verbal Ability Cluster	104.58	11.80	96.70	11.17	
J Reasoning Cluster	95.79	15.06	95.30	10.75	
W Perceptual Speed Cluster	94.25	13.27	96.52	12.79	
NJ Memory Cluster	94.21	10.54	94.78	13.97	

Table 2

Achievement Performance of Identified and Non-Identified Students

	LI	D	Non-LD	
Achievement Area	Mean	SD	Mean	SD
PIAT Mathematics	95.33	10.52	93.33	10.08
*PIAT Reading Recognition	93.33	6.58	102.07	11.37
PIAT Reading Comprehension	95.29	8.83	99.09	12.70
*PIAT Spelling	91.50	6.39	98.31	11.70
PIAT General Information	100.38	9.11	98.96	10.45
PIAT Total Test	93.33	6.58	96.85	10.23
*WJ Reading Achievement	82.58	6.36	92.70	10.40
WJ Mathematics Achievement	89.21	13.41	90.67	10.84
WJ Written Language Achievement	82.25	5.31	87.85	10.72
WJ Skills Achievement	84.46	5.45	88.89	9.07

^{*}Difference between means on measure was significant (p < .01).

Table 3

Subjects' Performance on Subtests of Woodcock-Johnson

Psycho-Educational Battery

•	LD Non-LD		-LD	
Subtest	Mean.	SD	Mean	SD
Picture Vocabulary	14.88	3.92	15.26	3.89
Spatial Relations	32.42	7.16	35.74	6.08
Memory for Sentences	10.96	2.79	11.48	2.83
Visual-Auditory Learning	104.25 .	17.17	105.89	19.04
Blending	12.92	3.37	15.19	3.79
Quantitative Concepts	15.00	5.38	17.52	6.19
Visual Matching	12.46	3.45	17.19	13.20
Antonyms-Synonyms	15.79	4.29	18.19	12.03
Analysis-Synthesis	13.92	3.78	14.56	5.81
Numbers Reversed	4.83	1.47	7.26	8.82
Concept Formation	11.42	6.03	16.22	14.15
Analogies	12.71	4.01	16.04	15.37
Letter-Word Identification ad	19.63	8.83	26.59	9.18
Word Attack ^a	3.25	3.22	7.93	5.62
Passage Comprehension ^a	6.58	5.15	11.70	6.21
Calculation b	8.17	3.56	12.22	6.20
Applied Problems ^{bd}	21.25	5.29	23.19	4.65
Dictation cd	8.71	4.20	12.93	6.69
Proofing ^C	2.17	2.18	5.37	5.06

a Subtests included in Reading Achievement cluster.

^bSubtests included in Mathematics Achievement cluster.

^CSubtests included in Written Language Achievement cluster.

d Subtests included in Skills Achievement cluster.

^{*}Difference between means was significant (p < 0.01).

Table 4

Relationship Between Classification by Woodcock-Johnson

Criteria and Operationalized Federal Criteria

	Federal Definition			
	1.0	SD	1.5 SD	
	LD	Not LD	LD	Not LD
Woodcock- LD	14	10	11	13
Johnson (n=24)	58%	42%	46%	54%
Classification	48%	46%	58%	41%
			· .	
Not LD				
(n=27)	15	12	8	19
	56%	44%	30%	70%
	52%	54%	42%	59%

Note: Upper percentage is relative to Woodcock-Johnson criterion and lower percentage is relative to federal guidelines.

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